WALTER F. BROWN (STATE BAR NO. 130248)
MELINDA L. HAAG (STATE BAR NO. 132612)
ROBERT L. URIARTE (STATE BAR NO. 258274)
ORRICK, HERRINGTON & SUTCLIFFE LLP
405 Howard Street
San Francisco, California 94105
Telephone: 415-773-5700
Facsimile: 415-773-5759
wbrown@orrick.com
mhaag@orrick.com
ruriarte@orrick.com

Attorneys for Non-Party
TRAVIS KALANICK

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN FRANCISCO DIVISION

WAYMO LLC,

Plaintiffs,

v.

UBER TECHNOLOGIES, INC.; OTTOMOTTO, LLC; OTTO TRUCKING LLC,

Defendants.

Case No.: 17-cv-00939-WHA

DECLARATION OF ALLAN T. VOGEL IN SUPPORT OF MR. KALANICK'S OPPOSITION TO WAYMO'S MOTION TO COMPEL MR. KALANICK'S CELL PHONE/CELL PHONE IMAGE

I, Allan T. Vogel, hereby declare:

1. I am employed as a Senior Cybersecurity Analyst with Fidelis Cybersecurity, a global electronic discovery, computer forensics and litigation support consulting firm headquartered in Bethesda, Maryland. I received my Bachelor's degree in Criminal Justice/Digital Forensics from Dixie State University, and am currently in the process of obtaining my Master's degree in Cybersecurity/Digital Forensics. I have been conducting forensic analysis and providing electronic litigation consulting services, specifically for mobile data, for more than eight years. Among other devices and operating systems, I have specific experience conducting forensic analysis on Apple iPhone mobile devices, including 11 generations of iPhone devices running iOS operating systems ranging from iOS 3.2 to 10.3.2. I have earned several industry certifications, including in Digital Forensics, Network Security, Incident Response, Cyber Ethics, Cyber Law and White Collar Crime. My curriculum vitae is attached as Exhibit A. I have personal knowledge of the following facts, and if called to testify, I could and would competently testify thereto.

2. On June 28, 2017, I was retained by Orrick, Herrington & Sutcliffe, LLP ("Orrick"), to perform forensic analysis and consultation in connection with a forensic image created by Stroz Friedberg ("Stroz") of a 256 gigabyte Apple iPhone 7 running iOS 10.3.2 belonging to Travis Kalanick. The scope of my engagement included reviewing and assessing the quality of the imaging and recovering all existing and recoverable deleted text messages from the image of Mr. Kalanick's mobile device.

3. On June 29, 2017, I shadowed a forensic examiner from Stroz as he created an advanced logical image of Mr. Kalanick's iPhone 7. An advanced logical image ("image") captures all of the unique user data that exists on a device. Creating an image involves extracting the file system structure for the data on the device, all call logs, SMSs, MMSs, application data, data files, notes, and files located in unallocated space on the device. As part of the extraction process, the imaging system decodes to reveal deleted files.

4. Based upon my review and analysis of Stroz's imaging process and the resulting image of Mr. Kalanick's mobile device, it is my opinion that the creation of the image was completed in accordance with the standards and practices of the Digital Forensics Industry. Stroz implemented

the correct methodology by adhering to strict protocols to create a forensically sound image, thereby ensuring that the evidence would not be contaminated, and each step of the process was documented in the appropriate manner to allow other experts to recreate the original process.

5. Using a forensic application called Cellebrite, version 6.2.5.39, which is a well-recognized forensic tool commonly used in the industry that allows for the extraction and detailed analysis of information, I identified all existing and recoverable deleted text messages and text message fragments found on the image of Mr. Kalanick's iPhone. As part of my work, I used a built-in feature of the Cellebrite tool to export the text message data to a Microsoft Excel spreadsheet and provided that spreadsheet to Orrick.

6. A significant portion of the messages I was able to recover on the image of Mr. Kalanick's iPhone were contained in what are referred to in the industry as "carved strings." File carving is a process used by forensics examiners to recover data from an electronic storage device, including, for example, to recover files that are corrupted, damaged, deleted or missing metadata. The location of text messages in carved strings of data indicates that, at the time of imaging, the text messages no longer resided with metadata intact in the messaging databases, for example because the text messages have been deleted and are no longer visible in the iPhone text message application.

7. When a text message is deleted from an Apple iPhone 7 device, the text message is no longer accessible using the iPhone's standard user interface, but the data continues to reside on the iPhone's flash storage in the messaging databases and can be retrieved using forensic tools. However, because the amount of available flash storage space on the iPhone is finite, data from deleted text messages only remains in the flash storage until the system determines that the space taken up by the old data is needed for new data, at which point the old data is overwritten by new data. One way to think about it is that when a message is deleted, it then remains in the message database with a tag "ready to be permanently overwritten." Once more data comes along that needs to be stored on the phone, that data will fill the spot of the item tagged "ready to be permanently overwritten." Once that happens, the "ready to be permanently overwritten" message, or a portion of it, is no longer recoverable from the iPhone's flash storage.

8. Only the iPhone's operating system, not the person performing the deletion, determines

and controls where new data will overwrite deleted text message data, and the new data does not necessarily take over the spot of the oldest "ready to be permanently overwritten" message first – the operating system could permanently delete a message that had been deleted long ago, or one that was newly deleted, depending on system needs. When the overwriting process starts, it does not overwrite files one by one, nor does it necessarily overwrite complete files. Partial files may remain on the hard drive until the whole file is eventually written over, leaving artifacts and/or fragments of documents or files. As part of my analysis, I was able to identify and recover 66,044 lines of carved strings from the sql databases on Mr. Kalanick's iPhone (the databases where text messages are stored). Based on my observations, the volume of carved strings appearing on the image of Mr. Kalanick's iPhone 7 is consistent with the use of an auto-delete function and the high volume of data usage reflected on the device.

9. My review of the configuration files contained on the image of Mr. Kalanick's iPhone confirmed that prior to June 2017, Mr. Kalanick's iPhone was set to auto-delete text messages once they became 30 days old. Configuration files are files that reflect, among other information, user-selected configuration parameters, including auto-deletion settings. When a user changes a configuration parameter, that change is recorded in a configuration file that includes a time stamp reflecting the time of the configuration change. Configuration files for Mr. Kalanick's iPhone indicate that his iPhone was configured to automatically delete text messages after thirty days at all times relevant. My analysis of the configuration files on Mr. Kalanick's iPhone is consistent with the data deletion patterns reflected on the device, the time and date stamps associated with deleted messages, and the fact that I was able to carve a large amount of text messages from Mr. Kalanick's iPhone. In previous examinations of iPhones that have the 30-day auto-delete function turned on, I have observed similar patterns and behaviors to those exhibited by Mr. Kalanick's iPhone.

10. The 30-day auto-delete function is a standard option available on all iPhones, which any iPhone user can select and utilize. The feature deletes all text messages that become 30 days old, not just specific messages or messages to/from specific contacts. In my experience, auto-delete is a feature commonly used by individuals with high text volumes, as it is a useful tool to manage storage space on a phone. In my opinion, there is nothing unique about how Mr. Kalanick's phone

stored and processed deleted messages and the associated data.

11. During my examination, I discovered that the metadata contained on Mr. Kalanick's phone at the time of the imaging identified who messages were "from," but, in the majority of instances, did not identify who text messages were sent "to." In other words, in most instances, there was no metadata reflecting who a text message was sent "to." In order to try to understand why this was the case, I consulted Cellebrite's internal knowledge base, a resource that is accessible to those who obtain a license to use Cellebrite. Cellebrite's internal knowledge base provides information about known issues related to the Cellebrite tool. The Cellebrite internal knowledge base did not list any information related to why the "to" information was not identifiable.

12. In a further effort to identify why the "to" information was missing, I extracted the entirety of the databases present on the image of Mr. Kalanick's phone and attempted to analyze them as standalone artifacts. I was unable to access the "to" information in the databases due to the iPhone 7's built-in encryption technology. As part of my efforts, I also contacted colleagues in the mobile forensics industry, including the Assistant Director of the Southwest Regional Computer Crime Institute, to inquire about the issue, and she had not encountered this specific problem before.

13. [redacted]

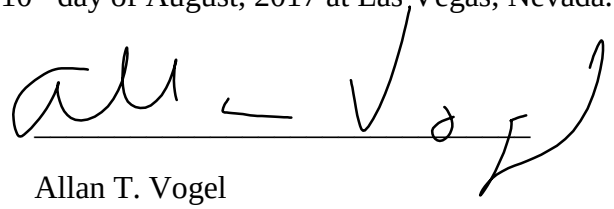
14. After my interview with Discovia, I contacted a representative from the Cellebrite Technical Support Team to inquire about the issue of the missing "to" fields. The representative told me he had not previously heard of this type of issue, and assigned a Case ID number to my inquiry. On Wednesday, August 9, a Cellebrite representative contacted me. The representative could not provide a definitive answer as to whether Cellebrite's software was the cause of the missing "to" field data, did not have specific ideas as to why this issue was occurring, did not state that this is a known issue with Cellebrite's software, and could not propose a ready fix for the issue.

15. When Stroz took the image of Mr. Kalanick's iPhone on June 29, 2017, the "iCloud" backup setting on Mr. Kalanick's iPhone was set to "false." This confirms that at the time that Mr. Kalanick's iPhone was imaged on June 29, 2017, the device was not configured to backup back up any data to iCloud, which is consistent with other forensic artifacts I reviewed from Mr. Kalanick's iPhone which showed no signs of iCloud backup.

16. According to device metadata, Mr. Kalanick's iPhone, imaged on June 29, 2017, was first used on February 10, 2017. On that date, data was transferred via a compressed file from Mr. Kalanick's prior device or devices to the iPhone that was imaged on June 29, 2017.

17. It is my opinion, based on my experience and work, that I have identified all existing text messages and all recoverable deleted text messages present on the image of Mr. Kalanick's iPhone.

I declare under penalty of perjury under the laws of the United States that the foregoing is true and correct. Executed on this 10th day of August, 2017 at Las Vegas, Nevada.



Allan T. Vogel